

## APPENDIX I

### TECHNICAL BASIS FOR OPERATOR REQUALIFICATION HUMAN PERFORMANCE SIGNIFICANCE DETERMINATION PROCESS

This SDP covers only those issues related to the operator requalification program. It is expected that performance errors made by a licensed operator leading to, or during an actual operational event, are an integral part of the overall outcome of the event and would be reflected in the event risk determination or ultimately in a performance indicator.

This SDP applies to issues related to the programmatic aspects (e.g. exam grading, exam quality, exam security) of operator requalification or to the performance of licensed operators during the written exam or the annual operating test. This SDP is applicable to requalification issues related to all licensed operators, including both shift and staff crews, with either active or inactive licenses. The process is applicable to all license holders since a staff crew member could, at any time, be asked to go on-shift and because an inactive license holder needs only to spend the required time on-shift to activate a license. A crew is defined as any group of individuals evaluated as a single entity by the licensee on the basis of its performance on the dynamic simulator.

The Simulator Operational Evaluation Matrix provides a guide to the perceived risk associated with the number of crews failing the annual operating test as related to the number of crews taking the test. The "Number of Crews that took the Annual Operating Test" includes multiple units in order to accommodate those instances where operators hold dual unit licenses. If a multiple unit site has separate unit licenses, the matrix should be used to assess the results at each of the units separately. Less than 20% failure rate is considered satisfactory and therefore does not constitute a finding to be recorded in an inspection report. A failure rate of 20% to 34% is considered to be a Green finding to be turned over to the licensee for corrective action. An operating test failure rate greater than 34% meets the NUREG-1021, Rev 8 criteria for an UNSAT Requalification Program and is considered to be a White finding up to 50%. Should more than half the crews fail, it is considered to be a serious programmatic weakness and a Yellow finding. Requalification operating test failure rate alone is never considered to be a Red finding unless over half the crews failed and one or more of the failed crews are returned to the shift without remediation.

The Requalification SDP process attempts to include only those aspects of the requalification program considered to be risk important. For example, the student feedback system in-and-of itself has little risk importance, but its review might lead the inspector to issues that are risk important. The process first examines inspector issues related to the licensee's grading of the exam to ensure that failed candidates or crews are properly identified and not passed inappropriately. Once again, the risk importance is not that the licensee's grading process was inadequate or flawed, but that inadequately trained operators may be allowed to go on shift. The inadequacy of the grading process may turn out to be a contributing factor, but inadequate training is probably the root cause.

The next parts of the SDP process are related to the written and walkthrough portions of requalification and address issues of exam quality and security and the performance of multiple individuals. The risk determination assumes that a single individual failure in requalification does not rise to the risk significance of a Green finding. However, when multiple failures are considered, more than 20% has been selected as the threshold for an unacceptable number of failures. This is generally consistent with the guidance in the examination standards of NUREG-1021, Rev. 8. Thus, more than 20% unacceptable written test items is the quality threshold; more than 20% of the operators failing the written portion is the performance threshold; more than 20% of the operators failing the operating test walkthrough is the walkthrough performance threshold, etc.

The simulator portion of the SDP evaluates scenario quality and security and performance of crews. Again, an individual failing in the simulator portion does not rise to the risk significance of a Green finding. The risk significance of crew performance depends on the percentage of crews that have failed, whether they were remediated before returning to shift, and whether the facility had a failure rate of Green or higher (as determined by the SDP Simulator Operational Evaluation Matrix) in the previous annual operating test. The risk assessment of operator performance on the simulator should include all of the crews tested based on test records, even if the inspectors witnessed testing of only some of the crews.

Finally, the SDP looks at the overall requalification program by asking if less than 75% of the operators passed all portions of the exam (NUREG-1021, Rev. 8, ES 601), and if more than 20% of the operator licensing records have operationally risk important deficiencies.